Vol. VII. JULY, 1891. No. 3.

JOURNAL

OF THE

New-York Microscopical Society

EDITED BY

REV. J. L. ZABRISKIE,

WAVERLEY AVE., FLATBUSH, L. I., N. Y.

CONTENTS.

	PAGE
I. The fungus, *Pestalozzia insidens*. By J. L ZABRISKIE. (Plate 28.)	101
II. Tourmalines in Micas of Maine. By EDWIN S. DRAKE	102
III. Proceedirgs	106
IV. Publications Received	111

New York:

PUBLISHED FOR THE SOCIETY,

QUARTERLY.

PRESS OF STETTINER, LAMBERT & CO.,
22, 24 & 26 READE STREET.
1891.

[Entered at the Post-Office at New York as second-class matter.]

New-York Microscopical Society.

OFFICERS FOR THE YEAR 1891.

President,	P. H. DUDLEY.
Vice-President,	J. D. HYATT.
Treasurer,	CHARLES S. SHULTZ.
Recording Secretary,	BASHFORD DEAN
Corresponding Secretary,	J. L. ZABRISKIE.

Committee on Admissions.

F. W. DEVOE, W. R. MITCHELL, W. E. DAMON, G. F. KUNZ, W. WALES.

Regular Meetings on the first and third Fridays of each month, from October to June, inclusive, at 8 P. M., at No. 64 Madison Avenue.

JOURNAL

—OF THE—

NEW-YORK MICROSCOPICAL SOCIETY

CONTAINING ITS TRANSACTIONS AND PROCEEDINGS.

PUBLISHED QUARTERLY.

All communications for the JOURNAL, all subscriptions, and all exchanges, should be addressed to the editor, REV. J. L. ZABRISKIE, Waverley Avenue, Flatbush, L. I., N. Y.

Terms of Subscription:—In the United States and Canada, One Dollar per annum, beginning with the January number. In Great Britain and Europe, Five Shillings per annum.

W. P. Collins, 157 Great Portland St., London, England, agent for Great Britain.

F. W. DEVOE & CO.,

(ESTABLISHED IN 1852.)

Fulton Street, corner of William Street,

NEW YORK.

ARTISTS' MATERIALS,

OF ALL KINDS,

FINE BRUSHES, MATHEMATICAL INSTRUMENTS,

COLORS, VARNISHES

Digitized by the Internet Archive
in 2019 with funding from
Wellcome Library

https://archive.org/details/s962id11784030

WELLCOME INSTITUTE LIBRARY
Coll. WelMOmec
Coll. No.

PESTALOZZIA INSIDENS.

JOURNAL

OF THE

NEW-YORK MICROSCOPICAL SOCIETY.

VOL. VII. JULY, 1891. No. 3.

THE FUNGUS, PESTALOZZIA INSIDENS.

BY J. L. ZABRISKIE.

(*Read March 6th*, 1891.)

This fungus I collected at New Baltimore, near Albany, N. Y., in 1872. I presented specimens to our State Botanist, Prof. Charles H. Peck, and he reported it in his Twenty-eighth Report, but the description has never been published. I take the opportunity to give that description now.

PESTALOZZIA INSIDENS, n. sp. On bark of living trunks of *Ulmus Americana* L. New Baltimore, N. Y., April, 1872. Acervuli scattered, erumpent, discoid, 300–500 μ in diameter; conidia 32 μ long exclusive of the bristles, and 12 μ in diameter, broadly elliptical, slightly curved, 5-septate, the four inner cells very dark brown and slightly constricted at the septa, terminal cells hyaline, the upper terminal cell nearly hemispherical, the lower terminal cell conical and distinctly truncated at the union with the basidium, each terminal cell obliquely prolonged in a stout, curved, sometimes flexuous, gradually tapering, abruptly terminated bristle; bristles 17 μ long; basidia slender, sometimes branching below, and sometimes 214 μ long.

Description of Plate 28.

The figures are all magnified 600 diameters. The central figure shows a mature spore attached to its basidium, the latter being frequently found of this length. Near the base of the basidium is seen a portion of a broken branch. The basidia are occasionally found thrice branched. On the left is shown a mature detached spore, and on the right an immature spore.

The genus is named after the celebrated botanist, Pestalozzi. I have given it the specific name *insidens*, on account of the somewhat grotesque appearance of the spore when attached to its basidium, resembling an animal perching or sitting on the tip of a pole.

Many species of this genus are described. They usually are parasitic on leaves, and usually have several attenuated bristles spreading from the tip of the upper hyaline cell. Several species have a single bristle in the same position, but I know of only one other which has a single bristle rising from the tip of each hyaline cell.

The other species exhibited, *P. tremelloides*, E. & E., I discovered upon bark of uncultivated grape at Skaneateles Lake, N. Y., in July, 1872. It has been described by Ellis and Everhardt. The compound spore is as long as that of *P. insidens*, but not so robust. It has a crest of from three to six spreading, attenuated, sometimes branched bristles rising from the tip of the upper hyaline cell. In fine, this is a typical *Pestalozzia*, unusually developed in the size and elegance of its compound spore, in the number and branching of its bristles, and in the tremulous character of its spore masses when the latter are moist.

THE DISCOVERY OF MICROSCOPIC TOURMALINES IN THE MICAS OF MAINE.

BY EDWIN S. DRAKE.

(*Read February 6th*, 1891.)

GENTLEMEN OF THE NEW-YORK MICROSCOPICAL SOCIETY:— By the kindness of my friend, Dr. Bolles, I am enabled to lay before you a brief account of a discovery, which I was so fortunate as to make in the autumn of 1889, of microscopic crystals of Tourmaline. You may know that the State of Maine has long had a reputation for its fine Tourmalines. Having many times found, when visiting one of the localities, pieces of mica with visible needles of this mineral enclosed, I, in the autumn of 1889, procured a piece of the mica for the purpose of seeing the high polarizing quality of the Tourmaline, of which I had read but had never seen. The crystals which this piece of mica contained were

green, tapering from the one-fiftieth of an inch to one one hundredth in a length of one and one-half inches. (These are approximate dimensions and are given from memory.) One day, looking at the mica in a strong sunlight, I observed what I thought were minute crystals, and, putting them under the glass, they were clearly defined. This prompted me to examine other pieces of mica, and resulted in the discovery of the crystals which are now submitted for your examination. I have gone on in my discoveries from small to smaller, and still smaller crystals or groups of crystals ; from finding them as radiations from visible nuclei, to finding them entirely isolated.

A word in regard to the mica in which they occur. You are doubtless aware that all the fine Tourmalines which have been found in our mines are found detached, in pockets in the rock, and not enclosed in a gangue or matrix. While in all these localities mica, containing radiating crystals of Tourmaline, is found in what we have come to call the *mineral sheet.* I have never found a piece of mica containing microscopic crystals except immediately in connection with a pocket. In my search for such mica I have handled over hundreds of pounds of mica taken from the mineral sheet, without finding anything, and in all my searches I do not think I ever found ten pounds that paid for the trouble of taking it apart layer by layer. In fact, all the specimens I have came from that one of our Tourmaline localities known as Mount Apatite, in Auburn, Maine.

The crystals occur very much as dendrites do between the laminæ of the mica, but one specimen amongst those sent, numbered 1, will show a peculiarity of their occurrence worth remark. To illustrate by supposition, suppose the Tourmaline crystal was first formed, in the shape of an open hand laid flat, with the fingers apart, the hand resting upon a continuous sheet of mica. The next sheet above would be continuous around the hand, but would send tongues up between the fingers, and so on, until the fingers had been enclosed, when a cap-sheet covering the whole would be formed. Slide No. 1 shows this crypt in which the crystal (slide No. 2) was enclosed.

I said in a letter to Dr. Bolles that the whole thing seemed to me to be "one big interrogation mark." This is conundrum No. 1. Were the Tourmaline crystals formed before or after the crys-

tallization of the mica? With nothing to contradict this, we might assume that the Tourmaline was formed first. I had no sooner commenced to believe this, than I found crystals crossing a fault in the mass of mica (probably caused by compression during some of the earth throes which the rocks had endured), which, upon one side, were *above* the continuous sheet, and, upon the other side, *below* the same sheet. One piece of mica, which was, I think, the richest in crystals which I have had, was nearly valueless from the difficulty of getting a crystal out because of this trouble. No matter what care I took, I shattered them.

Some idea of the variety of forms found can be got from the slides Dr. Bolles will show you. I have never seen two that could be said to resemble each other except in a general way. You might say of one group that they were fan-shaped, of another that they were palm-like, of another that they were plumose. The variety is infinite. I have mounted nearly one hundred slides, and I have examined under the glass probably three hundred, but the variety is so great that I have felt unable to attempt a classification by form. I hope you may appreciate my difficulty. I know you would if I could have the pleasure of showing you the collection.

I should like to remark upon another of my questions. By what I have learned of the laws of crystallization, I have been taught to expect that the association of given elements, in given proportions, will give a crystal having certain invariable features, constant in its angles, manner of modification by twinning, etc. The typical crystal of Tourmaline is a three-sided prism, having a three-sided pyramidal termination, striated longitudinally, never tapering in a detached crystal within my observation. I have never but once seen a detached crystal curved. But the slides show tapers, curves, etc., till they are bewildering. In the largest of the enclosed crystals I have been unable to discover longitudinal striation, and the form of the crystals has changed to a flat, blade-like form, in some cases represented by a blade of grass. Also, in most of my specimens the crystals are curved; the straight are the exceptions. In the slide marked No. 3 is an exceptional appearance, which I can only account for upon the theory of alteration. You may agree with me by observing that the crystal polarizes only in the thicker parts.

One thing I have omitted to mention which is of interest. Microscopic crystals are seldom found in clear, straight, laminated mica. They are much more likely to occur in mica which I should describe as crinkled. The piece of mica enclosed in the paper, marked "A," will explain my meaning. I think there are seven separate and distinct crystals in this piece. At one place three fan-shaped crystals can be brought within the field of my one-inch objective, although when the three are seen they will all be well toward the outer limit of the field.

A brief description of my method of getting my specimens ready to mount may be of interest. Having discovered a crystal by examining the piece of mica in a strong light, and by the aid of a hand-glass of two to three inches focus, I endeavor to remove the mica, layer by layer, until I have lifted off the last continuous covering layer, then to do nearly the same thing from the other side until I have removed all but the last layer. This can be done quite easily by cutting out, with the scissors, a square with the crystal about in the centre. Mounting upon a slide is quite simple when the specimen is thus made ready. I have had better success with Canada balsam than with glycerin jelly, but there may be better media with which I am not acquainted. My methods are the methods of twenty-five years ago, as I have hardly looked through a microscope till I found the microscopic Tourmalines, and, being a busy man, I have had no time to give to it, excepting in the evening, generally after nine o'clock.

Hoping I may have been enabled to bring to your notice something before unknown, and which may give you pleasure, and asking your kind indulgence for my slides, which I am aware are faulty in preparation,

I am, very truly,

Your obedient servant,

EDWIN S. DRAKE.

PORTLAND, Maine, January 13th, 1891.

PROCEEDINGS.

Meeting of February 6th, 1891.

The President, Mr. P. H. Dudley, in the chair.

Fourteen persons present.

Mr. Anthony Woodward announced the death at Bournemouth, England, on January 10th, 1891, of Mr. Henry Bowman Brady, F.R.S., LL.D., the writer on Foraminifera in connection with the "Challenger" Expedition.

Rev. E. C. Bolles, D.D, presented a paper by Mr. E. S. Drake, of Portland, Maine, entitled "The Discovery of Microscopic Tourmalines in the Micas of Maine." This paper was illustrated by twenty microscopical slides prepared by Mr. Drake, and it is published in this number of the JOURNAL, page 102.

In the discussion of this paper Dr. Bolles said that this mica is found in pieces of about the size of the human hand. A beautiful, plate-like form of quartz is sometimes found in mica, but not in the locality here mentioned. And, further, that Mr. Drake deserves great credit for isolating these crystals, which are exceedingly fragile.

Mr. J. D. Hyatt said that he had found crystals which resembled these in the mica of Manhattan Island, New York.

OBJECTS EXHIBITED.

1. Twenty microscopical slides, prepared by Mr. E. S. Drake, illustrating the paper of the evening: by E. C. BOLLES.

2. Balancer of the House-fly, *Musca domestica* L., with so called auditory organs: by J. L. ZABRISKIE.

Mr. Zabriskie said that the balancers of the diptera are doubtless rudimentary posterior wings. They are of dumb-bell form, situated upon, and directed outward and backward from the posterior sides of the thorax. The house-fly has two curious structures on the opposed surfaces of the enlarged base of each balancer, which structures are considered by some authors to be auditory organs. These structures occupy elliptical enclosures, which are crossed transversely by ten or eleven prominent ridges of beads, the ridges being separated by flattened depressions, and the depressions being furnished at regular intervals with stout hairs curving backward over the ridges.

Mr. George F. Kunz donated to the Library of the Society Special Report No. 8 of the U. S. Department of Agriculture, entitled "Cotton in the Empire of Brazil (1885): by John C. Branner, Ph. D."

Meeting of February 20th, 1891.

The President, Mr. P. H. Dudley, in the chair.

Twenty-seven persons present.

Mr. H. W. Calef was elected Recording Secretary *pro tem.*

The Corresponding Secretary presented a communication from the New York Academy of Sciences requesting the appointment of "two commissioners to meet with the same number from each of the other scientific societies located in New York City, with a view to holding a conference at which can be discussed plans for mutual benefit."

The Chair appointed as such commissioners Rev. J. L. Zabriskie and Mr. J. D. Hyatt.

Dr. Charles E. Pellew addressed the Society on "The Bacillus of Tuberculosis"

In a most able and interesting manner Dr. Pellew explained the character and operation of tuberculosis, the nature, operation, and culture of various bacilli, and gave a biographical sketch of Dr. Koch, with especial reference to his experimentation connected with the discovery of the properties of "the lymph," and the method of the employment of the latter in combating the disease.

The address was illustrated by an admirable projection of numerous lantern slides, by large colored diagrams, growth of bacilli in culture tubes, a large preparation on glass of human tuberculous mesentery, a bottle of the "Koch lymph" just received from Germany, and the following objects under microscopes, exhibited under the supervision of Dr. Pellew's assistants, Messrs. H. S. Stokes, H. C. A. Amory, and A. S. Vosburgh:

Objects Exhibited.

1. Tubercle bacilli in sputum.
2. Giant cell in tubercle of finger.
3. *Bacillus megaterium.*

4. Comma bacilli of *Cholera Asiatica.*
5. Spirilli of *Cholera nostras.*
6. Pneumonia micrococcus.
7. Anthrax bacillus.
8. Anthrax bacillus in blood of mouse.

Meeting of March 6th, 1891.

The President, Mr. P. H. Dudley, in the chair.

Eighteen persons present.

Mr. T. F. Smith, F.R.M.S., of London, England, was elected a Corresponding Member of the Society.

OBJECTS EXHIBITED.

1. Shell of Common Shrimp, *Crangon vulgaris* Fab., showing pigment cells in under layer: by L. Riederer.

2 Pollen in honey of the Hive-bee, *Apis mellifica* L.: by L. Riederer.

3. The fungus, *Pestalozzia insidens*, n. sp., on *Ulmus Americana* L.: by J. L. Zabriskie.

4. The fungus, *Pestalozzia tremelloides*, E. & E., on *Vitis* sp., by J. L. Zabriskie.

5. Ash block from Colon, S. A., containing living specimens of *Calotermes flavicollis* F., sent by Mr. J. Beaumont: by P. H. Dudley.

6. A ruling on glass by the late Charles Fasoldt, with bands from 5,000 per inch to those said to be 200,000 per inch: by P. H. Dudley.

7. Ore from Chihuahua, Mexico, containing iron, silver, copper, lead, and zinc: by H. W. Calef.

Mr. Anthony Woodward, chairman of the Committee on Annual Reception, reported progress, explaining the extended work of the Committee in their endeavor to make provision for a creditable reception.

Mr. Riederer explained his exhibits as follows:

1. Shell of the Common Shrimp, *Crangon vulgaris* Fab. Some crustaceans, like some amphibians, fishes, and cephalopods, have cromatophores, or pigment-cells. I have found only brief notes concerning such pigment-cells in crustaceans, and therefore make this statement respecting amphibians and cephalopods.

Claus remarks on pigment-cells in cephalopods, as *Sepia* and *Loligo :* "The walls of the pigment-cells are formed of a cellular membrane, to which numerous radiating muscular fibres are attached. When these contract the cells are pulled into a star-shape, and the pigment is distributed. When contraction ceases the cell returns, by the elasticity of the wall, to its original spherical shape, and the pigment is concentrated into a small space, thus the animal changes color. As far as color is concerned, there are usually two kinds of chromatophores, placed near and one above the other. They are connected with a special centre on the stalk of the optic ganglion, and they cause a rapid interchange of blue, red, yellow, and dark color."

In amphibians the various colorings of the skin are principally due to branched pigment-cells of the cutis. The change of color in frogs is caused by changes in the form of these cells.

2. Pollen in honey of the Hive-bee. When bees gather nectar from the flowers, they also gather ripe pollen, which is brushed off by the hairs which cover the body. Bees, like flies, frequently clean their bodies. This act of cleansing is chiefly accomplished by the fore legs, on which they have a comb-like attachment—exhibited before this Society on several occasions. And the collected pollen, often carried home in large loads, they fasten on the broadened part of the hind legs, the "pollen baskets." *

Even honey taken from the hive invariably contains more or less of pollen; and the scum, forming on honey after standing for some time, consists almost exclusively of pollen grains and a few other impurities, such as hairs of bees and butterflies. The presence of these impurities is a good test of the quality of honey. Large quantities of glucose, made from maize, are sold under the name of honey. Such honey, as might be expected, contains no pollen.

Mr. Zabriskie explained his exhibits as stated on page 101.

Mr. Dudley explained his exhibits of Termites in blocks of White Ash prepared by Mr. Beaumont. Each block has a shal-

---

* The Hive-bee certainly uses also the mandibles and the legs in collecting pollen, especially when the latter is abundant in the particular flowers which it is at the time frequenting. And in such times of abundance the loads in the corbiculæ, or "pollen baskets," may be seen to be increased by a rapid and very peculiar combined motion of all the legs, passing backward the pollen mixed with adhesive nectar, while the bee rises from and is still hovering over the flower.—Ed.

low cavity hollowed in the upper surface, large enough to freely contain the living Termites, which are held captive by a glass slip fastened over the cavity. The block under the microscope is tenanted by two auxiliary queens, one soldier, and three workers of the species mentioned.

Mr. Dudley also stated that he had seen the rulings of the late Mr. Fasoldt, exhibited under the preparer's own manipulations of illumination and magnification, and that he was able to distinguish the bands said to be 190,000 to the inch.

Meeting of March 20th, 1891.

The President, Mr. P. H. Dudley, in the chair.

Eighteen persons present.

Mr. J. D. Hyatt, of the Commissioners appointed by the Society to the Conference of the Scientific Societies of New York City, reported the action of said conference. The report was accepted and adopted, and on motion it was resolved: That the present Commissioners be continued in their office for the ensuing year.

Mr. Anthony Woodward, chairman of the Committee on Annual Reception, reported the action of his Committee in arranging for a reception to be he'd at the American Museum of Natural History in Central Park, on the evening of April 17th next, and stated that the use of the first floor and lecture room of the Museum was offered gratuitously by the authorities to the Society for such purpose.

On motion it was resolved: That the Corresponding Secretary be directed to convey to President Morris K. Jesup and the Trustees of the Museum the hearty thanks of the Society for this kind offer.

Dr. Edward G. Love exhibited one hundred projections of lantern slides of his photomicrographs, and Mr. Charles F. Cox also exhibited projections of a large series of lantern slides made from Dr. Woodward's celebrated prints of diatoms.

[We heartily recommend the new work, "Appleton's School Physics," published by the American Book Company. One desiring assistance in comprehending the foundation principles and

operations of optical instruments will find clear, accurate, and valuable instruction in the chapter on "Light," comprising seventy-eight pages, treating of reflection, refraction, lenses, the spectroscope, photography, vision, polarization, etc., abundantly and beautifully illustrated.—ED.]

PUBLICATIONS RECEIVED.

The American Monthly Microscopical Journal: Vol. XI., No. 12—Vol. XII., No. 5 (December, 1890—May, 1891).

The Microscope: Vol. XI., Nos. 2—4 (February—April, 1891).

Microscopical Bulletin and Science News: Vol. VIII., No. 1 (February, 1891).

Bulletin of the Torrey Botanical Club: Vol. VIII., Nos. 3—6 (March—June, 1891).

The Botanical Gazette: Vol. XVI., Nos. 3—5 (March—May, 1891).

The Journal of Mycology: Vol. VI., No. 4 (April, 1891).

Natural Science Association of Staten Island: Proceedings; February 14—May 9, 1891).

Psyche: Vol. VI., Nos. 179—182 (March—June, 1891).

Insect Life: Vol. III., Nos. 6—8 (March, April, 1891).

Anthony's Photographic Bulletin: Vol. XXII., Nos. 4—11 (February 28—June 13, 1891).

West American Scientist: Vol. VII., Nos. 56—58 (January—March, 1891).

School of Mines Quarterly: Vol. XII., Nos. 2, 3 (January, April, 1891).

Academy of Natural Sciences, Philadelphia: Proceedings; Part 3 (October, 1890); Part 1 (January, 1891).

American Academy of Arts and Sciences, Boston: Vol. XXV. (May, 1890).

Kansas Academy of Science: Transactions; Vol. XII. (1890).

Kansas Experiment Station: Bulletin No. 15 (December, 1890).

Elisha Mitchell Scientific Society: Journal; Vol. VII., Part 2 (December, 1890).

United States Department of Agriculture: Division of Vegetable Pathology, Circular No. 10 (1891); Farmers' Bulletin, Nos. 2, 4 (1890, 1891).

New York State Entomologist, J. A. Lintner, Ph.D.: Sixth Report, Injurious Insects (1891).

Cornell University Agricultural Experiment Station: Bulletins Nos. 26, 27 (March, May, 1891).

Michigan Agricultural Experiment Station: Bulletins Nos. 70—73 (January—April, 1891).

Michigan Agricultural Reports: Index (1891).

Michigan Board of Agriculture: Twenty-ninth Annual Report (1890).

Agricultural Experiment Station of Alabama: Bulletins Nos. 21—24 (December, 1890—February, 1891).

Essex Institute: Bulletin; Vol. XXII., Nos. 7—9 (July—September, 1890).

Johns Hopkins University: Studies from the Biological Laboratory, Vol. V., No. 1 (January, 1891); University Circulars, Vol. X., Nos. 86—90 (March—June, 1891).

Le Diatomiste: Nos. 4, 5 (March, June, 1891).

Mining and Scientific Review: Vol. XXVI., Nos. 9—23 (February—June, 1891).

American Lancet: Vol. XV., Nos. 3—6 (March—June, 1891).

Brooklyn Medical Journal: Vol. V., Nos. 3—6 (March—June, 1891).

Indiana Medical Journal: Vol. IX., Nos. 9—12 (March—June, 1891).

Hahnemannian Monthly: Vol. XXVI., Nos. 3—6 (March—June, 1891).

The Satellite: Vol. IV., Nos. 6—9 (February—May, 1891).

National Druggist: Vol. XVIII., Nos. 5—12 (March—June, 1891).

Electrical Engineer: Vol. XI., Nos. 148—163 (March—June, 1891).

Journal of the Royal Microscopical Society: 1891, Parts 1, 2.

International Journal of Microscopy and Natural Science: Vol. I., Nos. 3—6 (March—June, 1891).

The Naturalist: Nos. 188—191 (March—June, 1891).

Grevillea: Nos. 91, 92 (March, June, 1891).

Royal Society of New South Wales: Journal; Vol. XXIV., Part 1 (1890).

Victorian Naturalist: Vol. VII., Nos. 10—12 (February—April, 1891).

The Canadian Institute: Transactions, Vol. I., No. 2 (1891); Fourth Annual Report (1891); Time Reckoning for the Twentieth Century, by Sanford Fleming, C.E. (1889).

Canadian Record of Science: Vol. IV., No. 5 (January, 1891).

Ottawa Naturalist: Vol. IV., No. 12—Vol. V., No. 3 (March—June, 1891).

Nottingham Naturalists' Society: Transactions (1890).

La Notarisia: Vol. VI., Nos. 23, 24 (February, April, 1891).

La Nuova Notarisia (March, 1891).

Nuovo Giornale Botanico Italiano: Vol. XXIII., No. 2 (April, 1891).

Société Belge de Microscopie: Bulletin, Vol. XVII., Nos. 4—6 (1891); Annales, Vol. XIV. (1890).

Bulletin de la Société d'Études Scientifiques d'Angers: Vol. XIX. (1890).

Société d'Étude des Sciences Naturelles, Béziers: Bulletin, Vols. XI., XII. (1888, 1889).

Société des Sciences Naturelles de la Creuse: Mémoires, Vol. I., No. 4 (1890).

Société Royale de Botanique de Belgique: Comptes-Rendus (February, March, 1891).

Wissenschaftlicher Club in Wien: Monatsblätter, Vol. XII., Nos. 5—8 (February—May, 1891); Jahresbericht, Vol. XV. (1891).

Società Africana d'Italia: Bolletino, Vol. X., Nos. 1, 2 (January, February, 1891).

Gesellschaft der Wissenschaften, Prag: Sitzungsberichte, Part. 2 (1890); Jahresbericht (1890).

Naturwissenschaftlicher Verein, Frankfurt (Oder): Mittheilungen, Vol. VIII., Nos. 8—11 (November, 1890—February, 1891); Societatum Litteræ, Vol. IV., No. 9—Vol. V., No. 1 (October, 1890—January, 1891).

Naturhistorischer Verein in Augsburg : Bericht (1890).

Naturwissenschaftlicher Verein zu Osnabrück : Jahresbericht, Vol. VIII. (1890).

Revue Internationale de Bibliographie Médicale : Vol. II., No. 1 (January, 1891).

Société Imperiale des Naturalistes de Moscou : Bulletin, 1890, Nos. 2, 3.

Académie d'Hippone : Comptes-Rendus, No. 8 (1890).

Corrections to be made in the number of the JOURNAL for April, 1891 :

Fig. 12, plate No. 27 should be reversed in order to agree with General Cox's references to it on page 80.

Page 81, eleventh line from bottom, for Dr. Brebisson read De Brebison.

Page 85, fourteenth line from top, for No. 15 read No. 14.

Page 86, ninth line from bottom, for No. 15 read No. 14.

WELLCOME LIBRARY INSTITUTE

BAUSCH & LOMB OPTICAL CO.,

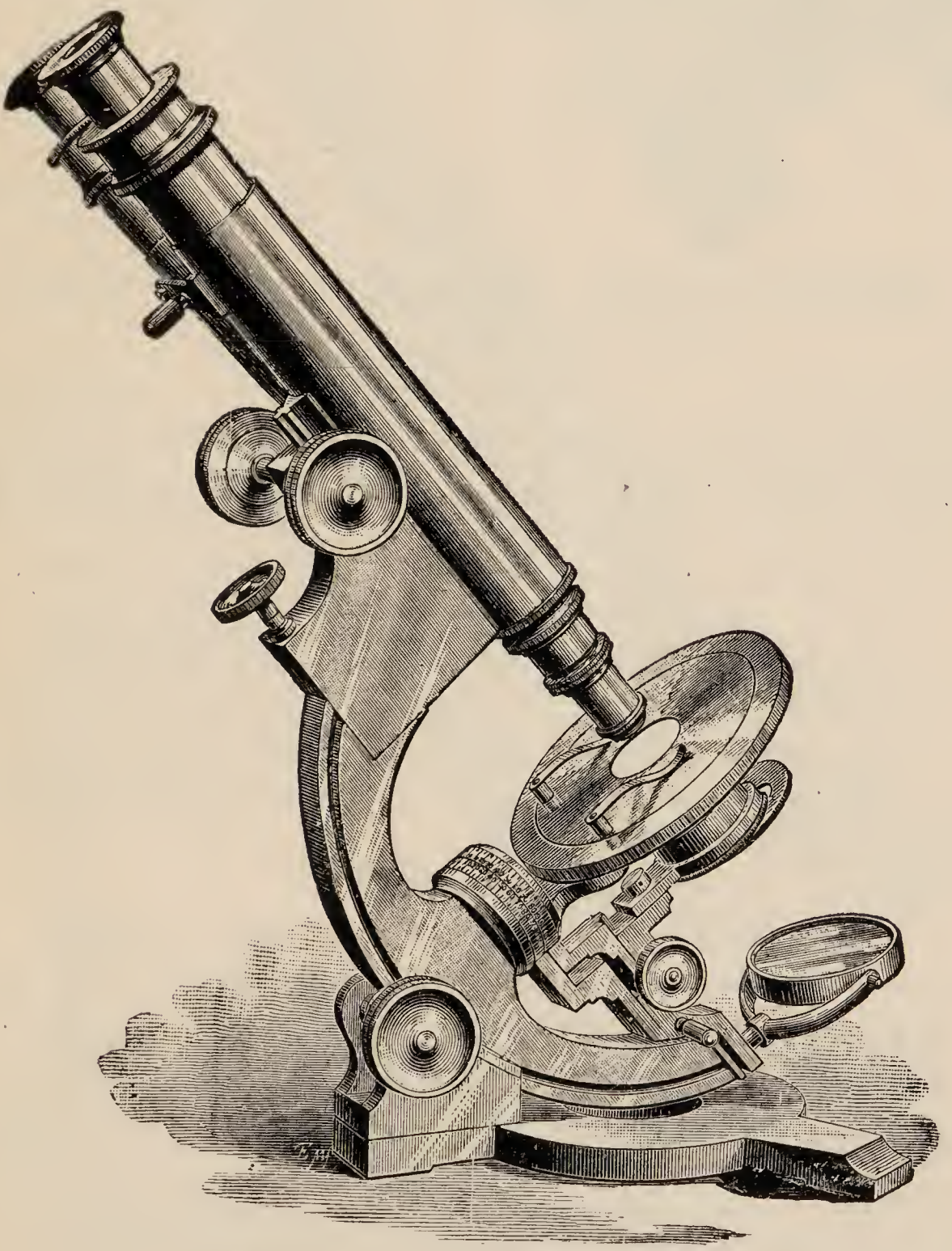
MANUFACTURERS OF

Microscopes, Telescopes, Lenses,

AND OTHER OPTICAL INSTRUMENTS,

531-543 N. St. Paul St.,
ROCHESTER, N. Y.
P. O. Box 354.

48 & 50 Maiden Lane,
NEW YORK.
P. O. Box 432.



American Concentric Microscope.

Latest issue of our 98-page

Catalogue Just Out,

Containing a variety of new Apparatus, will be sent free on application.

DR. GEORGE GRÜBLER'S

ANILINE DYES.

Put up dry, in drachm bottles, at the following prices:

	EACH.
Eosin (Sol. in water),	.25
Fuchsin,	.30
" Acid,	.30
Gentian—Violet,	.25
Methyl—Grün,	.35
" —Blau,	.35
Vesuvinbraun,	.25

Other dyes, not enumerated here, may be had on application.

Sole Agents for W. H. Bulloch's Celebrated Microscope Stands.

Sole Agents for Thoma's Microtomes.

Microscopical Slides, Cover-Glasses, Mounting Materials, Labels, and Staining Fluids, of every description.

MEYROWITZ BROTHERS, Opticians,

295 & 297 Fourth Avenue,

Corner 23d Street, ***NEW YORK.***

GRUNOW MICROSCOPES

And Objectives; Binocular, Micrometer, and Spectral Eye-Pieces.

Particular attention is called to the newly invented

CAMERA LUCIDA.

(See "Am. Monthly Microscopical Journal," Nov., 1882; "The Medical Record," March, 10, 1883; "Scientific American," April 18, 1883.)

NEW ILLUMINATING APPARATUS.

For Oblique and Axial Illumination, as designed by Prof. Abbé, can be adapted to any Microscope.

Descriptive Circulars on application to

J. GRUNOW,

No. 621 Sixth Avenue, New York.

A NEW PHILOSOPHY.

Appletons' School Physics. An entirely new book. By a corps of distinguished scientists and teachers. Cloth, 12mo, 544 pages. $1.20. *Now Ready.* It is a singularly simple, practical, and at the same time authoritative work—just the one to arouse the student or general reader to enthusiasm for Natural Science study. All who are looking for an accurate, comprehensive, judiciously condensed, entertaining work on Physics should examine this new book.

Specimen copies mailed to any address on receipt of price. Descriptive pamphlets and complete price-list free on application.

American Book Company,

NEW YORK, ∴ CINCINNATI, ∴ CHICAGO.

Please mention Journal of the New York Microscopical Society.

ESTABLISHED IN 1853.

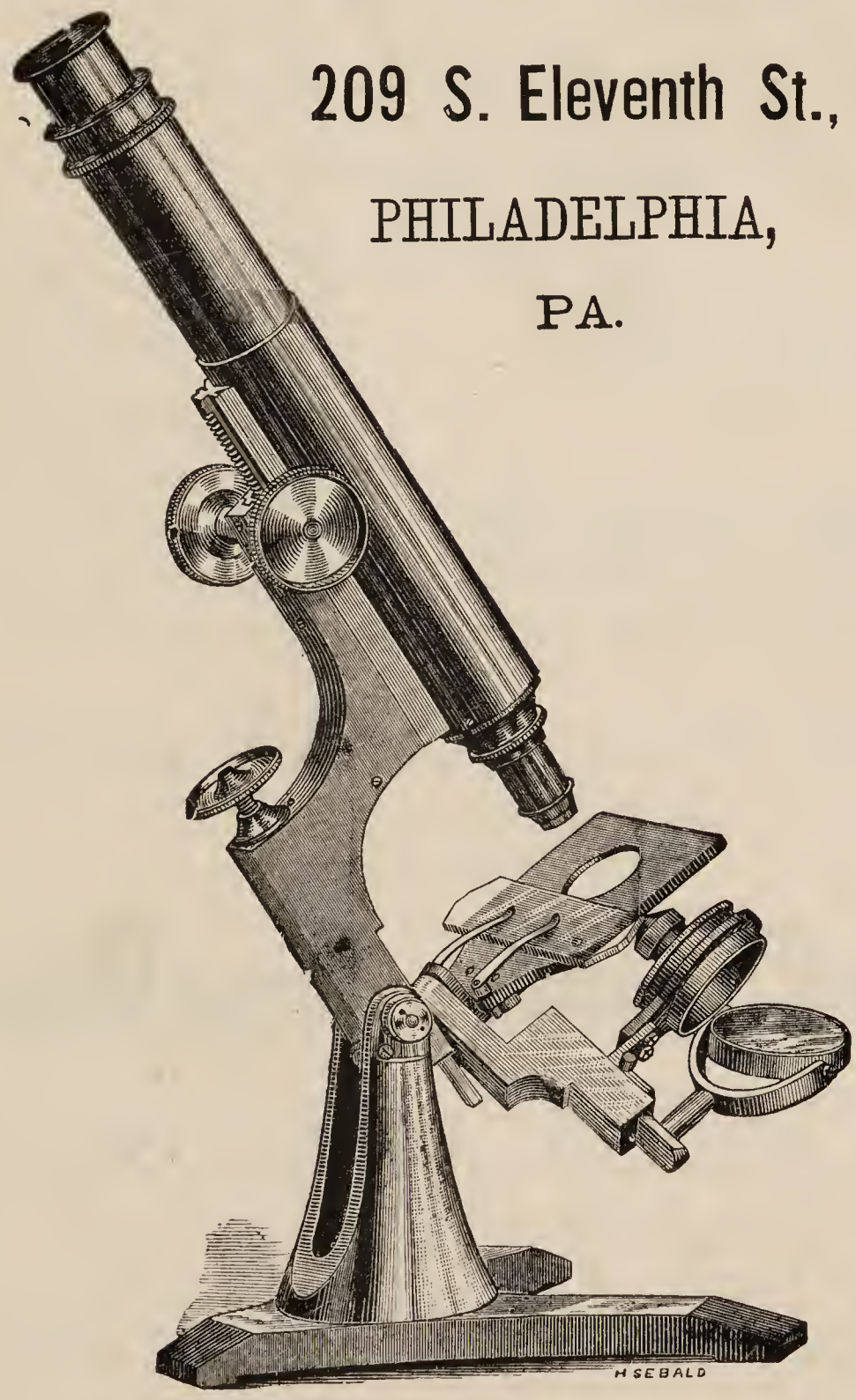
JOSEPH ZENTMAYER,

OPTICIAN.

—MANUFACTURER OF—

Microscopes and Microscopical Apparatus,

American Histological Stand, complete, $58.



American Student Stand, complete, $38.

209 S. Eleventh St.,

PHILADELPHIA,

PA.

NEW YORK AGENCY,

MEYROWITZ BROS.,

Fourth Avenue and 23d Street.

WM. WALES, FORT LEE, N. J.

SEND FOR CATALOGUE.

THE IRVING PHARMACY,

64½ University Place, NEW YORK.

PRESCRIPTIONS A SPECIALTY.

A COMPLETE LINE OF ALL GOODS IN THE TRADE.

Private formulas of all kinds for physicians and microscopists prepared with great care and treated with strict confidence.

AGENCY FOR CHAPMAN'S IMPROVED "MOULD" FOR MICROSCOPICAL CELLS.

By the use of this Mould, Cells for Microscopical Preparations can be easily made. These cells are durable, elegant, and inexpensive—their cost being, in fact, little more than the labor required to make them. They can be readily attached to the Slide, presenting a handsome appearance.

Price One Dollar. Sent free by mail on receipt of price.

A. S. CLARK,

NO. 34 PARK ROW, NEW YORK.

BOOKSELLER

—AND—

NEWSDEALER.

SPECIAL attention given to orders and Queries, from Book Buyers, as to rare, scarce and out of Print books, back numbers of Periodicals, Reviews, Magazines, &c. Pamphlets in great variety on all kinds of topics. Catalogues issued from time to time sent to any address. A Special Catalogue of Dictionaries and Methods in all Languages, also one of Second-hand School and College Text Books, Lists of "Wants" from Poole's Index given very careful attention.

WILLIAM WALES,

MANUFACTURER OF

First-Class Microscope Objectives

FORT LEE, N. J.

MICROSCOPES OF ALL MAKES FURNISHED.

Zentmayer's always on Hand.

Instruments ordered in New York City Sent on Approval.

DISCOUNT TO COLLEGES.

G. S. WOOLMAN,

116 Fulton Street,

NEW YORK.

Microscopes,

Glass Slips,

Thin Glass,

Mounting Materials,

Staining Fluids,

And all Accessories for the Microscope, including New Objects of Interest to Collectors.

Send for Illustrated and Priced Catalogue.